California Monthly Climate Summary
November 2010

Weather Highlights

November 2010 was a cool, near normal month. According to the Western Region Climate Center's California Climate Tracker, the monthly average temperature was 47.1°F which is 1.0°F lower than the long-term average of 48.1°F. With a statewide average of 2.68 inches, precipitation for November was 95% of the long term average.

November 2010 started dry and mild with the presence of high pressure and off-shore flow. Several places in Southern California topped 100°F. By the end of the week, things changed as a series of storms moved over Northern California bringing widespread rain and mountain snow. Week two of November saw high pressure build out of Southern California northward bringing drying and warming conditions. In Southern California, a Santa Ana wind event developed at the end of the week. The warm, dry weather continued into week three until a strong Pacific storm system moved out of the Gulf of Alaska towards the West Coast. This cold storm brought rain, and snow down to the foothills of the northern Sierra Nevada Mountains. Cold air behind the front brought thunderstorms to parts of the state with hail and an EF1 tornado reported in El Dorado County. Freeze warnings were placed for most of northern California. The month ended with another cold storm moving out of the Gulf of Alaska with snow down to 2000 feet. After this system, dense fog was reported in the Central Valley.

Preliminary records, reported on the National Weather Service Record Event Report, shows that statewide there were 171 temperature records tied or broken and 3 precipitation records tied or broken for the month. Of the 171 temperature records, 82 were for new low minimum temperatures. Records were set over 19 days of the month. Several long-standing records fell this year. On November14, Kentfield broke a 1923 record high temperature with a reading of 81°F. The old record was 80°F. On November 24th San Francisco tied a 1906 record low temperature with a reading of 41°F. On the 25th San Francisco tied an 1892 low temperature record of 42°F. Also on the 25th Sacramento tied an 1880 record low temperature of 30°F. Some locations hit new highs and lows during the month. South Lake Tahoe tied a 1999 record high temperature of 68°F on November 5th. Later in the month on the 24th, South Lake Tahoe smashed the daily low temperature record with a reading of -8°F. The old record set in 1978 was 5°F. The following day's reading of -7°F broke the old record of 2°F also set in 1978. Down south, Long Beach reached 100°F on November 3rd which broke the 1976 record of 94°F. This is the latest date in the year that Long Beach has reached 100°F and is the second highest November high temperature. The highest was 101°F reached on November 1, 1966. UCLA reached only 99°F on the 3rd not only breaking the old daily record of 95°F set in 1949, but establishing a new all-time high temperature for November at this location. The previous record was 97°F set on November 4, 1976.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 229 stations recorded a minimum temperature below freezing in November while only 5 stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC and CIMIS networks is also shown at the end of the summary.

Precipitation in November was above normal in the Sierra Nevada and San Joaquin Basins. The desert regions south coastal region, and north coastal region were below normal. All other regions were near normal conditions. For the CDEC precipitation gages for November 2010, the largest amount of precipitation recorded was Strawberry Valley on the Feather River with 15.16 inches. This is 135% of the average precipitation for this station for November. At the other end of the spectrum, two stations recorded zero inches for the month. For the CIMIS network, Camino in El Dorado County topped the precipitation charts with 6.02 inches for the month and 16 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network. The 8-Station Index for northern California precipitation recorded 8.5 inches in November with 19 days showing precipitation. On average, 6 inches of precipitation is recorded for the 8-Station index in November. Statewide, the average precipitation for November was 106% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network is now in its third year of operation in California. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns in participating states. After two years in the program California has more than 694 volunteers signed up spanning 52 of California's 58 counties. The county with the most volunteers at the end of November is Sonoma with 86 volunteers. For the month of November 9,098 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in November was in San Bernardino County with 3.13 inches recorded on 11/21/10. Seventeen hail reports were submitted in November with sizes ranging from pea size to 3/8th inch. One hundred twenty-five snow reports were included with the precipitation reports. To join CoCoRaHS or find more information, please visit http://www.cocorahs.org.

Snowpack and Water Supply Conditions

Water year 2011 has begun for the water supply index categories. Water year 2010 resulted in a below normal category for the Sacramento Basin and above normal category for the San Joaquin Basin. The first forecast for WY 2011 will be made in

December. Water supply information for California can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST.

Drought Monitor and Seasonal Outlook

November saw further improvements in the depiction of California's drought in the Drought Monitor. The maps for California for October 26, 2010 and November 23, 2010 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website http://drought.unl.edu/dm/. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the November 23rd depiction, the entire state of California is depicted in either D0 (abnormally dry), or D1 (moderate drought) conditions. Extreme drought (D2) was eliminated from the California depiction. Drought free area in California remained at 90.1%. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for December through February from NOAA depicts California with improving conditions in the far northeast part of the state which is the only part of California with drought conditions depicted in the Drought Monitor. Updates are provided twice per month. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html.

The California Nevada River Forecast Center has developed some drought monitoring tools for California. These tools look at the frequency associated with precipitation deficits for the Northern California Eight Station Index and the San Joaquin Five Station Index. Another tool looks at the frequency of end-of-month storage for select reservoirs in California. The frequencies of the observations are related to the Drought Monitor's drought categories D0 through D4. These tools can be found at http://www.cnrfc.noaa.gov/climate.php. For November, the Eight Station Index is in drought free conditions for both the 12-month period and for the 24 month period with total water year precipitation in the 87th percentile of the distribution. The Five Station Index is drought free for both periods as well with total water year precipitation in the 97th percentile. For the reservoirs for end-of-November storage, Casitas is the only reservoir at D1, while Oroville and Beryessa are at D0 conditions. All other reservoirs on the graphic are considered to be drought free.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is being classified as a La Niña pattern. Equatorial sea surface temperature anomalies for the tropical Pacific for October have been negative with values of -1.5°C in the Niño 3.4. The September through November 3-month running mean of the Ocean Niño Index (ONI) is -1.4 which is the fourth ONI value exceeding the threshold to qualify for a La Niña event. For conditions to be classified as a La Niña event, five consecutive ONI values need to be less than the threshold value of -0.5. Most forecast models have the tropical sea surface temperatures remaining in La Niña conditions through the early part of 2011.

More information can be found at the Climate Prediction Center's web site: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ Updates are posted weekly. The latest three month outlook (December through February) from NOAA indicates equal chances for above or below normal temperatures for most of the state of California with the exception of the Central and Southern Coast regions which are expected to have below normal temperatures. For precipitation, the far north of the state is forecast to have above normal conditions with equal chances for above or below normal precipitation elsewhere. Outlook plots and discussions can be fount at http://www.wrcc.dri.edu/longrang/. General weather information of interest can be found at http://www.noaawatch.gov/. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

November saw many harvests moving to completion and the start of growth of winter crops. Nut harvests were completed during the month as were rice, corn, and cotton crops. Late cuttings of alfalfa were baled and fields were prepared for winter crops. Pomegranate, persimmon, and kiwi harvests continued during the month along with orange, lemon, grapefruit and olives. Blueberry and raspberry nursery plants were beginning to be shipped from Tulare County. The planting of winter vegetables began in Fresno County with good growing conditions reported. Rangeland conditions continue to improve with the moisture conditions from recent rains. Supplemental feeding continues and movement of livestock from summer to winter grounds neared completion. For further crop information see http://www.nass.usda.gov/index.asp.

Other Climate Summaries

California Climate Tracker (new product of Western Region Climate Center)
Golden Gate Weather Service Climate Summary
NOAA Monthly State of the Climate Report

Statewide Extremes (CDEC)

High Temperature – 102°F (Whittier Hills Wilderness Preserve, South Coast)
Low Temperature – -15°F (Tunnel Guard Station, Tulare)
High Precipitation – 15.16 inches (Strawberry Valley, Sacramento Basin)
Low Precipitation – 0 inches (2 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 83.7^0F (Long Beach, Los Angeles County)
Low Average Minimum Temperature – 21.5^0F (Alturas, Modoc County)
High Precipitation – 6.02 inches (Camino, El Dorado County)*
Low Precipitation – 0 inches (16 stations)
*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Nov	Oct-Nov	Stations	Nov	Oct-Nov	Nov	Oct-Nov
North Coast	0.27	5	5	5	17	14	13	86.4%	134%
SF Bay	0.03	2	2	2	6	3	3	125.9%	157%
Central Coast	0.06	3	3	3	11	6	4	100.2%	144%
South Coast	0.06	3	3	3	14	11	11	75.1%	164%
Sacramento River	0.26	5	5	5	41	35	33	116.7%	158%
San Joaquin River	0.12	6	6	6	24	22	21	146.5%	192%
Tulare Lake	0.07	5	5	5	28	26	26	159.3%	167%
North Lahontan	0.04	3	3	3	13	7	7	118.4%	210%
South Lahontan	0.06	3	3	3	15	6	6	70.4%	139%
Colorado River	0.03	1	1	1	6	3	3	4.6%	166%
Statewide Weighted Average	1	36	36	36	175	133	127	105.8%	157%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	21	19.6	42.2	73.0
SF Bay	8	30.1	50.8	77.1
Central Coast	12	30.0	52.2	91.1
South Coast	53	31.5	54.5	90.6
Sacramento	75	16.1	42.2	76.2
San Joaquin	44	15.1	40.3	76.5
Tulare Lake	16	10.2	37.8	75.0
North Lahontan	26	0.4	33.1	65.7
South Lahontan	12	10.3	39.5	74.3
Colorado River Desert	8	30.3	59.5	91.5
Statewide Weighted Average	275	18.1	43.2	76.9

U.S. Drought Monitor

California

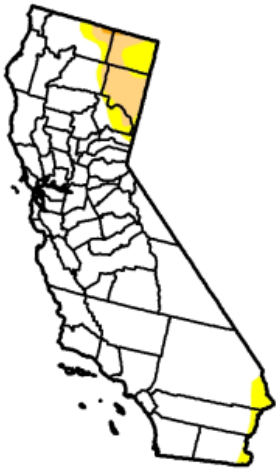
October 26, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	90.1	9.9	4.6	0.2	0.0	0.0
Last Week (10/19/2010 map)	88.1	11.9	6.1	0.2	0.0	0.0
3 Months Ago (08/03/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
Start of Calendar Year (01/05/2010 map)	6.6	93.4	72.8	9.0	0.0	0.0
Start of Water Year (10/05/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
One Year Ago (10/27/2009 map)	9.1	90.9	62.5	17.7	0.0	0.0

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

http://drought.unl.edu/dm

Released Thursday, October 28, 2010
Author: Eric Luebehusen, U.S. Department of Agriculture

U.S. Drought Monitor

California

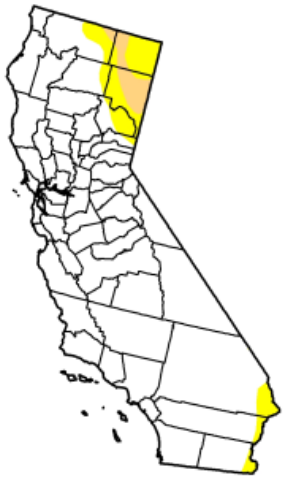
November 23, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	90.1	9.9	2.4	0.0	0.0	0.0
Last Week (11/16/2010 map)	90.1	9.9	4.6	0.2	0.0	0.0
3 Months Ago (08/31/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
Start of Calendar Year (01/05/2010 map)	6.6	93.4	72.8	9.0	0.0	0.0
Start of Water Year (10/05/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
One Year Ago (11/24/2009 map)	8.4	91.6	73.6	17.3	0.0	0.0

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

http://drought.unl.edu/dm

Released Wednesday, November 24, 2010
Author: M. Brewer, NOAA/NCDC